Social Presence and its Relevancy to Cognitive and Affective Learning in an Asynchronous Distance-Learning Environment: A Preliminary Literature Review

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This article examines the literature on the theory of social presence and its relevancy to cognitive and affective learning in an asynchronous distance-learning environment. With the evolution of distance education, colleges and universities have found themselves on the cutting edge of an unprecedented new era. This review explores the relationships between student perceptions of self and others and how this influences their cognitive and affective learning outcomes. Conclusions and contributions to HRD are drawn.

Keywords: Social Presence, Cognitive, Affective Learning.

The evolution of the higher education arena from traditional face-to-face instruction to computer-mediated instruction has created both challenges and opportunities for technological advances for researchers as well as for educators and their students. Few studies in the field lend themselves to fully understand the role of social presence from an adult learner's perception participating in distance education courses. As more college level courses are being developed for delivery in a web-based environment, increased pressure is present to identify components that contribute to student satisfaction, as well as overall learning and retention of knowledge. This literature review will investigate deeper the overall relationship between social presence, cognitive and affective learning in an attempt to provide a better understanding of how to construct engaging online learning environments based on the results.

Overview of Distance Learning

While many view distance learning as a new concept, in actuality it has been around for quite some time. According to Cohen (1999) "distance learning began as correspondence learning and has evolved from the use of primary print-based material into a worldwide movement using various technologies" (p. 218). Traditionally, courses were designed so that the learning process required the student and instructor to occupy the same geographic facility and required little to no technology. This concept has drastically changed in the twenty first century and the evolution of distance learning has prompted many colleges and universities to seek a better understanding of the online learning environment.

McIssac & Bolcher (1998) reveals that "distance learning continued to further develop in the forms of extended education, teleconferencing, web-based instruction, chat rooms, satellite television, computer networks and virtual classrooms " (p. 43). The introduction of these new learning communities has many educational facilities analyzing their current programs to determine which components successfully contribute to or support their student's overall retention of knowledge and satisfaction. Although previous researcher who examined distance education suggests further encouraging a sense of learning community by considering the role of social presence, few studies in the field provide information to assist in fully understanding the importance of social presence from the perspective of the distance learner. Therefore, social presence and its relevance to distance learning is a topic worthy of further examination.

Social Presence defined

Social presence has emerged as an important social factor in the field of distance learning (Guanwardena & Zittle, 1997), but in order to fully understand the concept of social presence, it is important to understand what socialization and presence entails. According to Kanwar and Swenson (2000), socialization refers to the "process by which people learn the characteristics of their group and the attitudes, values, and actions thought appropriate for them" (p. 18). Jacobson (2001) described presence as "the sense of being caught up in the representation of virtual worlds" (p. 653). With these definitions in mind one can see how the learner's perception of presence could affect their desire to socialize with peers. In addition, the learner's comprehension or retention of knowledge (cognitive learning) as well as their feelings, attitudes, behavior and satisfaction (affective learning) with the course may also be affected.

Cognitive and Affective Learning defined

Webster's Dictionary (1996) defines cognition as " an intellectual process by which knowledge is gained from perception or ideas"(p. 137) and affect refers to "how something impacts, impresses or influences a person

emotionally" (p. 13). Research has demonstrated that cognitive and affective learning are important aspects of the overall learning process that has lasting effects on outcome for students, teachers as well as institutions.

Asynchronous mode of delivery defined

The educational community has found itself on the edge of a new era of distance learning. As evident in the body of literature distance learning has been promoted as being a more convenient, flexible, and cost effective way for adult learners to continue their studies.   Communication has been transformed via the integration of telecommunication, media, and computers and has given learners the ability to access a learning environment anytime, anywhere at their own pace. Rourke, Anderson, Garrison, & Archer (1999) indicates that asynchronous learning environments negates the need for communication to occur simultaneously and allows correspondence with students and teachers to occur at different times and places. In addition, an asynchronous leaning environment provides the assurance of equal treatment for learners by providing the avenue by which they have the opportunity to interact with instructors and peers with little regard for race, sex or disability.

As in any learning environment some perceived disadvantages might exist. Richardson and Swan (2003) states that it is important for researchers "to ask themselves if it is really the physical (social) presence of the instructor and students that is essential to the element of learning when considering the challenge of the effectiveness of online" (p.69). This study will explore the role of social presence in an asynchronous distance learning environment and its relationship to the learner's overall retention of knowledge and satisfaction with the course.

Problem Statement

Due to the lack of research on social presence and its relevancy to cognitive and affective learning in online environments, there is a need to generate a framework of knowledge that instructional designers and educators can utilize to assist them in effectively developing future courses. This new framework of knowledge will assist educators in determining the extent that perception of social presence influences student's retention of knowledge (cognitive learning) and provide information that will help them to determine the extent that perception of social presence influences student's satisfaction with a course (affective learning). According to Benson & Russo (2005), "Given the concerns of teachers, administrators, and students about the efficacy of online education, it is appropriate to examine the outcome variables, in particular affective and cognitive learning, in light of the exigencies and characteristics of the asynchronous online learning environment" (p. 55).

This paper is an attempt to enhance knowledge on the linkage between social presence and cognitive and affective learning and to provide educators with a better understanding of how to construct engaging online learning environments in the future.

Research Questions

In an attempt to provide meaningful data resulting from this study, it is imperative to note that the purpose of this study is threefold. The first purpose is to generate a framework of knowledge that instructional designers and educators can utilize to assist them in effectively developing future courses. The second is to provide information that will assist educators in determining the extent that perception of social presence influences student's retention of knowledge (cognitive learning). The third is to provide information that will assist educators in determining the extent that perception of social presence influences student's satisfaction with a course (affective learning).

The following research questions guide this study:
1. What is the role of social presence and how does it influence an instructional designer or educator's ability to effectively design asynchronous online courses.
2. In what ways does social presence influence an adult learner's comprehension and retention of knowledge (cognitive learning) in an asynchronous learning environment?
3. In what ways does social presence affect an adult learner's attitude of satisfaction, level of interaction with their peers and their instructor (affective learning) in an asynchronous learning environment?

Theoretical Framework

Theory of Social Presence

This review of literature will explore the history, the definition, and the components that enhance social presence. The genealogy of social presence can be traced back to Mehrabian's (1969) concept of immediacy. Mehrabian defined immediacy as "those communication behaviors that enhance closeness to and nonverbal interaction with another" (p.203). Short, Williams, and Christie (1976), were the first to introduce the concept of

social presence. Their work was initially based on previous research that addressed one-to-one interpersonal communication. They defined the *social presence theory* as "the degree of salience of the other person in the interaction and the consequent salience of interpersonal relationships" (p.65). It was through this research that these scholars sought to obtain a better understanding of how mediated communication could affect the learner's feelings of satisfaction, attitudes and behaviors *(affective learning)*, their sense of being perceived as "real" *(social presence)*, and their overall retention of knowledge *(cognitive learning)* in a distance-learning environment

In an attempt to obtain a better understanding of social presence, Short et al. (1976) investigated, compared, and evaluated the affects of social interaction via various types of communication media. It is through this exploration that Short et al. (1976) defined social presence as "a quality of the medium itself" (p. 65). Although Short et al. (1976) conceived the theory of social presence and attempted to define it as simply as possible, it is apparent from the body of literature that a standardized definition for the theory of social presence remains lacking. For the purpose of this literature review, the term social presence will refer to "the degree of person-to-person awareness that occurs in a mediated environment" (Tu, 2002).

Cognitive Learning Theories

In a learning environment cognitive and affective theories can be instrumental in influencing a learner's ability or desire to comprehend or retain knowledge as well as their attitudes, beliefs and overall satisfaction with a particular course. Plotnik (1999) informs us that cognitive development refers to "how a person perceives, thinks, and gains an understanding of his or her world through the interaction and influence of genetic and learned factors" (p.32); however, there are a number of perspectives within the cognitive domain that are currently impacting educators' thoughts on how to improve the overall teaching and learning process. In order to effectively address the impact of these perspectives, it is important to understand the evolution and development of the cognitive domain.

According to Winn and Snyder (1996), the genealogy of the cognitive domain can be traced back to 1879 when Wilhelm Wundt established introspection, a cognitive approach that utilized a self-observation to examine the working of the mind. In 1932, Wundt, Tichener and James' work served as the springboard for Edward Tolman who developed his view on cognitive learning. This led to the work of Gestalt psychologists such as Jean Piaget who used his concern for the structure of knowledge to assist him in the development of the *cognitive development theory*. Mayer (1992) reports that "Gestalt Psychology is often cited as one of the roots of cognitive theory" (p. 405). .

The next movement to surface was the behaviorism movement in which theorist argued that behaviorism should be the focus of psychology, not consciousness. It was in the behaviorism era that advocates such as James B. Watson and B.F. Skinner sought to achieve universal psychological laws and develop classical and instrumental conditioning. In 1956, a break in behaviorism occurred when Benjamin Bloom developed what we refer to today as Bloom's Taxonomy. This taxonomy included three overlapping domains, the cognitive, psychomotor, and affective and could be utilized through the interaction of media.

During the 1960's a mass migration toward the cognitive revolution occurred and the cognitive development approach became the springboard for all other intellectual theories. In the mid 1980's Albert Bandura developed his *social-cognitive theory*, which addresses an individual's ability to be self-regulating, self-organizing, proactive and self-reflecting. This concept or theory led to the development of the *cognitive flexibility theory* which was introduced by Spiro, Rand, Feltovich, Jacobson, and Coulson (1991), as "an integrated theory of learning, mental representation, and instruction" (p. 28). This theory is especially formulated to support the use of interactive technology such as asynchronous learning environments as well as complex domains that may be ill structured.

Affective Learning Theory

In the past, affective learning or attention to the emotional part of learning has been undervalued in our educational systems. Maciocia, Mavrikis and Lee (2003) states that it is difficult to develop educational systems that take into account affective issues because of the "pervasive influences of affective factors" but mostly "due to the existence of various, usually contradictory theories" (p. 1). Today more and more educators are beginning to understand that student's affective responses are the avenues that enable them to create social presence as well as identity in online settings. Because social presence is a significant factor in improving instructional effectiveness (Tu, 2002), it is imperative that educators understand that the lack of social presence can lead to more frustration and less affective learning (Rifkind, 1992).

Methodology

The method used to review the literature on social presence and its relationship to cognitive learning and affective learning was to search scholarly electronic databases, journal publications, books and Internet sites for relevant information .The descriptors online social presence, affective learning, cognitive learning, distance learning, and

asynchronous learning environments were used to conduct the search. The electronic databases accessed were ABI Inform, ERIC and ERIC Full Text Documents, and key journals related to Distance Learning and Human Resource Development (HRD). Electronic Journals accessed were *American Journal of Distance Education, Behavior Research Methods and Instrumentation, Communication Education, Communication of the ACM, Critical Issues, Cyber Psychology & Behavior, Educational Media International, Educational Technology, Educational Technology & Society, Quarterly Review of Distance Education, Journal of Applied Psychology, Journal of Asynchronous Learning Networks, Journal of Distance Education, Journal of Interactive Television*, *Journal of Educational Psychology,* and the *International Journal of E-Learning,*

The literature search yielded books, conference papers, refereed and non-refereed articles, and online sources. Only articles with explicit reference to social presence, cognitive learning, affective learning, and asynchronous learning environments were considered. The articles resulted from these screenings were examined in detail and sources were chosen based on scholarly relevance for the basis of this literature review. Additionally, manuscripts often revealed additional sources for research, which were pursued using the method noted above. After analyzing the sources for relevant information and usefulness in answering research questions concerning this study, the results provided 28 articles of relevant information concerning social presence, cognitive learning, and affective learning in a distance-learning environment.

Finally, this research project involved preparing a theoretical framework, posing research questions, and drawing conclusions from the literature for results and findings, conclusions and future implications to the field of human resource development.

Results and Findings

Although web-based learning is still a new domain, it is imperative that educators and course designers search for empirical evidence that examines the social aspects of a distance-learning environment, thereby enhancing their ability to successfully plan, develop and implement distance courses in the future. While incorporating interaction activities might be considered by some to be time consuming and demanding, the review of literature reveals the need for research that examines the effects of social presence on student achievement, satisfaction, and attrition.

This preliminary review of the literature revealed that the limited research studies on social presence and its relevancy to cognitive and affective learning in distance education environments do not lend themselves to fully understanding the effects it has on the learning process. Richardson and Swan (2003) indicates that further "research is needed to determine the extent that perceptions of social presence influences student satisfaction, student motivation, and other attitudinal factors as well as student's cognitive and affective learning" (p. 18).

Consistent with the available literature on social presence, this study demonstrates the importance of examining the relationship present with cognitive and affective learning. Often in a face-to-face educational environment the relationship is merely assumed., however, it should be noted that to effectively establish a community of inquiry in an online setting social presence or the feeling of connection with others is necessary. Hitlz and Wellman (1997) argued, "virtual, or electronic, communities involve sociability, emotional support, and a sense of belonging as important ends in themselves, though they are often accompanied by exchanges of information and services" (p. 2). Based on this information, one can conclude that if a student feels connected, they might be encouraged to participate in online classroom discussions and activities, thereby increasing the likelihood that they will complete the course. The completion of the course would decrease the attrition rate and possibly increase the student's level of cognitive and affective learning.

Although facilitating interaction in an online setting may be time consuming the review of the literature revealed the importance of incorporating activities that require interaction among students, peers and instructors during the design and development phase of a distance learning course. Having the ability to interaction with others provide numerous opportunities for students to share ideas, knowledge and social support (social presence), thereby working together to enhance their knowledge (cognitive learning) and ultimately their overall satisfaction (affective learning) with the course. Viygotsky (1978) and Sharan (1980) shares with us that interaction among participants is critical in learning and cognitive development.

Another area worthy of examination is a student's personal perception or assessment of their own presence in an online setting and how this perception or assessment affects their overall retention of knowledge and satisfaction with the course. Russo & Benson (2005) mentions that "more investigation of students' assessment of their own presence and its relationship to course outcomes is in order" (p. 60)

Finally, the review of literature made it clear that a student's degree of presence, engagement and interaction with others in an online educational setting had significant influence on the attrition rate and the overall outcomes of the course. According to Viygotsky (1978) this concept corresponds with the socio-cognitive literature that

establishes leaning as a social activity that provide individuals with opportunities to learn more from their interactions with others than from reading material alone.

Conclusion

In examining social presence, cognitive learning, and affective learning we find that few studies have explored the relationship between the three and their effect on web-based instructional programs. Student's perception of social presence and its value in relation to participation in distance learning instructional programs as well as the retention of knowledge (cognitive learning) and their overall satisfaction with the course (affective learning) could provide pertinent information for the development of future courses. Picard (1997) reveals that there are numerous studies that support the claim that affective cues generally influences cognitive processes but are often ignored or misunderstood when determining the role they play in a learner's overall performance.

When designing and developing distance education courses, it is imperative that educators remember that students utilizes their affective learning skills to assist them in developing attitudes about the course, the instructor, their peers, and the topic which in turn contributes to or affects the student's overall success in the learning process. Because learners possess various degrees of individual differences, the task of developing effective asynchronous courses could be widely affected by contradictory views or factors that could influence a learner's perception and overall satisfaction. According to Smith and Ragan (1999), affective learning involves "attitudes, motivation, and values and the expression of these often involves statements of opinions, beliefs, or an assessment of worth" (p.64).

The ambiguity of affective learning issues dictates that educators address contradictory theories that may negatively impact the learning process as well as remain cognizant of factors that may influence the students personal perception of social presence during the design and development phase of educational programs. This information could provide insight into whether an asynchronous learning environment allows the student the ability to convey social presence by interacting with others, sharing ideas and information, and whether the interaction provide them with opportunities to enhance their overall knowledge and satisfaction with the course.

According to Picciano (2002) and Short, Williams, & Christie, (1976), student perceptions that others in the online course are immediate, present, or significant to the interaction may help to establish an environment in which students attend to one another, share ideas, trust one another and collaborate. In addition, LaRose & Whitten (2000) informs us that a student's sense of salience or presence of others in an online setting is a critical component of the learning environment.

As apparent from the literature review, the lack of documentation exploring the relevancy of social presence to cognitive and affective learning in an asynchronous learning environment makes this a worthwhile topic to examine. The results of this examination may provide insightful information to instructional designers as well as educators in the development of future asynchronous instructional programs. This void in literature has provided the foundation to justify the need for this study.

Implications for Further Research and Practice

Although this preliminary literature review provided useful information from separate articles concerned with social presence, cognitive learning and affective learning it is important to note the difficulty in locating articles that combined the three topics. Another important finding reflected the difficulty in finding a multifaceted instrument to effectively measure presence. A useful extension of this research might include examining the change in perception over time.

Finally, instructors need to be aware of the impact their behaviors and presence or lack of presence has on their student's level of satisfaction, motivation and overall learning outcomes for the course. Based on this fact additional research needs to be conducted to determine the extent of the influence that social presence plays on teacher effectiveness ratings as well as instructor satisfaction with the courses taught.

Contributions to New Knowledge in HRD

Given the linkage established between social presence, cognitive learning, and affective learning the next area of concern is how to determine the most effective way to maximize this newly developed knowledge thereby allowing course designer or developers to optimize the potential of the learning environment. The fact that the relevancy between social presence and cognitive and affective learning in an asynchronous learning environment has gone unexplored by researchers provides opportunities for HRD professionals to develop new insights in this area. In an

effort to enhance and provide new knowledge for the field of Human Resource Development this literature review provides the following three core opportunities for review and consideration:

1. An opportunity for educators to become more aware of the impact that social presence may have on student satisfaction as well as retention of knowledge,
2. Provide a means for HRD professionals to link up with practitioners to develop potential theories in this growing area or concern, and
3. Provide opportunities for HRD professionals to show their commitment to uncovering key barriers that may affect the successful design and development of future distance educational courses.

From a research perspective, this paper acknowledges the complexity of this issue and seeks to contribute new insights that will assist colleges and universities in successfully addressing the array of challenges they face in online course development. From the instructor's perspective, this research emphasizes the importance of conducting future research to determine the extent of how social presence or the lack of social presence could possibly influence teacher effectiveness ratings. Acquiring additional knowledge in this area could assist educators in becoming more aware of the impact that they have on a student's overall course satisfaction and motivation to learn.

In addition, this paper helps to demonstrate the need to develop more higher education specific guidelines for online course development as well as the need to incorporate theories that effectively address social presence and its relevancy to both cognitive and affective learning. According to Richardson and Swan (2003), "these theories indicate that there is a "better" model for online courses and this model should not only present the information and materials to students but also incorporate the social aspects of learning in both the design and instruction of online courses" (p.68). In addition, through structured activities for the course, educators and instructional designers will be able to utilize the concept of social presence to develop a more effective learning environment, provide opportunities for interaction with others, and contribute to the scholarship of teaching and learning.

Finally, the limited amount of empirical research in the area of social presence and its relationship to cognitive and affective learning in a distance learning environment makes this study one of particular importance to the literature.

References

Bloom, B. S. (1994). *Reflections on the development and use of the taxonomy.* Chicago: University of Chicago Press.

Cohen, A. (1999). Instructional technology and distance learning through the internet. *Educational Media International, 36*(3), 218-229.

Guanwardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education, 11*(3), 8-26.

Hackman. M. Z., & Walker, K. B. (1990). Instructional communication in the televised classroom: The effects of system design and teacher immediacy on student learning and satisfaction. *Communication Education, 39(*3), 196-206.

Hitlz, S. R. & Wellman, B. (1997). Asynchronous learning networks as a virtual classroom. *Communication of the ACM, 40,* 44-48.

Jacobson, D. (2001). Presence revisited: Imagination, competence, and activity in text-based virtual worlds. *CyberPsychology & Behavior 4*(6). 653-673.

Kanwar, M., & Swenson, D. (2000). *Canadian sociology.* Iowa: Kendall/Hunt Publishing Company.

LaRose, R., & Whitten, P. (2000). Re-thinking instructional immediacy for web courses: A social cognitive exploration. *Communication Education, 48*(1), 31.

Mavrikis, A., Maciocia, A., Lee, J. (2003). Targeting the affective state of students studying mathematics on a web-based ILE. In Young Researchers Track of the *11th International Conference on AIED*, 2003.

Mayer, R. E. (1992). Cognition and instruction: Their historic meeting within educational psychology. *Journal of Educational Psychology, 84*(4), 405-412.

McIssac, M. S., & Bolcher, J. M. (March 1998). How research in distance education can affect practice. *Educational Media International, 35*(1), 43-47.

McLeod, P. L., Baron, R. S., & Marti, M. W. (1997). The eyes have it: Minority influences in face-to-face- and computer-mediated group discussion. *Journal of Applied Psychology, 82*, 706-718.

Mehrabian, A. (1969). Some referents and measures of nonverbal behavior. *Behavior Research Methods and Instrumentation, 1*(6), 205-207.

Picard, R. W. (1997). *Affective computing.* Cambridge, MA: MIT Press.

Picciano, A. G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks, 6*(1).

Plotnik, R. (1999). *Introduction to psychology*. Belmont, CA: ITP.

Richardson, J. C., & Swan K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.

Rifkind, L. J., (1992). Immediacy as a predictor of teacher effectiveness in the instructional television. *Journal of Interactive Television*, *1*(1), 31-38.

Roucke, L., Anderson, T., Garrison, R. D., & Archer, W. (1999). Assessing social presence in an asynchronous text-based computer conferencing. *Journal of Distance Education, 14*(2), 50-71.

Russo, T., & Benson, S. (2005). Learning with invisible others: Perceptions of online presence and their relationship to cognitive and affective learning. *Educational Technology & Society, 8*(1), 54-62.

Sharan, S. (1980). Cooperative learning in small groups: Recent methods and effects on achievement, attitudes, and ethic relations. *Review of Educational Research, 50,* 241-271.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications.* Toronto: John Wiley and Sons.

Simonson, M., & Maushak, N. (2001). Instructional technology and attitude change. In D. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 984-1016). Mahway, NJ: Lawrence Erlbaum Associates.

Smith, P. & Ragan, T. J. (1999). *Instructional design.* New York: John Wiley & Sons.

Spiro, R. J., Feltovich, P. J., Jacobson, M. J., & Coulson, R. L. (1991, May). Cognitive flexibility, constructivism, and hypertext: Random access instruction for advanced knowledge acquisition in ill-structured domains. *Educational Technology*, *31* (5), 24-33.

Tu, C. H. (2002). The measurement of social presence in an online environment. *International Journal of E-Learning, 1*(2), 34-46.

Viygotsky, L. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

Webster's II new collegiate dictionary, (1996). Boston, MA: Houghton Mifflin Company.

Winn, W., & Snyder, D. (1996). *Cognitive perspectives in psychology.* New York: MacMillian.